ABSTRACT

A programmable interconnect structure for an integrated circuit comprises: a pass-gate fabricated on a substrate layer to electrically connect a first node to a second node; and a configuration circuit including at least one memory element to control said pass-gate fabricated substantially above said substrate layer; and a programmable method to select between isolating said first and second nodes and connecting said first and second nodes.

A programmable buffer structure for an integrated circuit comprises: a first and a second terminal; and a programmable pull-up and a programmable pull-down circuit coupled between said first and second terminals; and a configuration circuit including at least one memory element coupled to said pull-up and pull-down circuits; and a programmable method to select between isolating said first terminal from second terminal by deactivating said pull-up and pull-down circuits, and coupling said first terminal to second terminal by activating said pull-up and pull-down circuits.

A method of forming a programmable interconnect structure for an integrated circuit comprises: fabricating one or more pass-gates on a substrate layer to electrically connect two points; and selectively fabricating either a memory circuit or a conductive pattern substantially above said pass-gates to control a portion of said pass-gates; and fabricating an interconnect and routing layer substantially above said memory circuits to connect said pass-gates and one of said memory circuits and conductive pattern.